

Name _____

Date _____

Chicken Wing: Tissues

Purpose

The purpose of this exercise is to practice manipulating dissecting equipment and become familiar with organs and tissues found throughout the body of animals.ⁱ

Background Information

A bird's wing is made up of groups of tissues and organs working together to perform a job. Before beginning the dissection, review the functions performed by the tissues and organs.

- Skeletal muscles are attached to bones.
- Skin is the membranous tissue that forms the outer covering of the body that provides a protective barrier from the outside environment.
- Muscle tissue is composed of bundles of skeletal muscle fibers. When these tissues expand and contract they produce motion in the wing.
- Fatty tissue, when stored on the underside of the skin, helps to keep the body warm, cushion and protect other body tissues, and stores vitamins A, D, E, and K.
- Blood vessels are the arteries, veins, and capillaries, which transport blood throughout the body. Capillaries are too small to be seen without a microscope. Arteries have thicker walls than veins.
- Tendons are especially strong connective tissue that attaches skeletal muscle to bones.
- Cartilage helps prevent neighboring bones from grinding against each other.
- Bone provides structural support and manufactures red blood cells.
- Nerves are the bundles of fibers that transmit sensory stimuli and motion impulses.
- Ligaments are strong bands of connective tissue that connect two bones together.

Procedure

Materials

1. One raw chicken wing for each student.
2. Scissors
3. Paper plate
4. Tweezers or forceps

Sequence of Steps

Read the description of each of the tissues or organs and then begin the dissection for that particular tissue/organ. In the box provided, sketch an illustration of each tissue/organ listed in this lab.

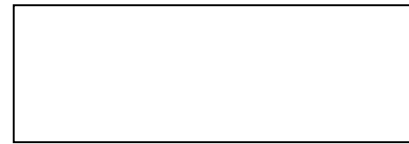
SKIN – The skin is the external covering of the entire wing. The skin will have a web like appearance between the bones. Look for evidence that the skin was covered with feathers. Cut a slit in the skin covering the largest bone and joint.



SKIN

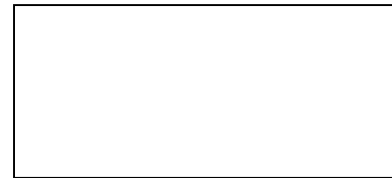
How does skin provide nonspecific defenses against infection?

CONNECTIVE TISSUE – First lift a corner of the skin and, with tweezers or forceps, peel it back gently from the muscle. Notice the shiny, thin, membrane that surrounds the muscle and attaches the muscle to the skin. This is connective tissue.



CONNECTIVE TISSUE

MUSCLE TISSUE – Note the pink-orange bundles of fibers attached to the bone. This is muscle tissue.



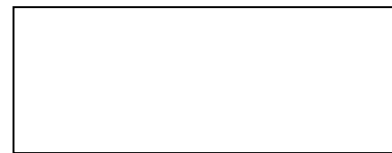
MUSCLE TISSUE

FATTY TISSUE – Continue to peel back the skin slowly and gently until you locate a tissue between the skin and muscle that is yellow in color and greasy to the touch. If no fatty tissue can be found there, find a thick piece of skin and proceed to cut through it to see if there is any fatty tissue. If the lab is utilizing store-bought chicken wings, it is possible that little or no fat can be observed.



FATTY TISSUE

BLOOD VESSELS – With the skin peeled back, scan the surface of the skeletal muscles for thin red tubes. These are blood vessels. Arteries and veins might also be located in bundles of connective tissue with nerves.



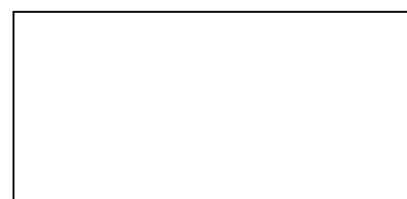
BLOOD VESSELS

TENDONS – Look at the top of the large bone. Notice the shiny white piece of connective tissue that attaches skeletal muscle to bone. These are tendons.



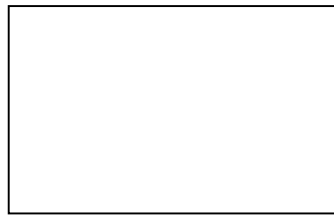
TENDON

CARTILAGE – Examine the top of the large bone. Locate a pearly white hard tissue found at the ends of the long bones. This is cartilage.

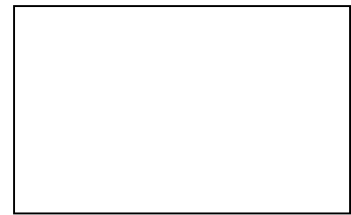


CARTILAGE

BONE – Cut through the muscle with your hard white bone. Bones are hard (but not primarily of calcium and phosphorus. The to cross-sect the bone. Ask the instructor to the cross-section of the bone; the mass of red is the red marrow that manufactures red blood cells. Notice the bone surrounding the red marrow. The bone itself in not solid, but is an asymmetrical lattice work of calcium and phosphorus.



MARROW



CROSS SECTION OF BONE

NERVES – Nerves are usually found buried deep within an organism, often lying close to long bones. Sometimes an artery, vein, and nerve are held together in one bundle of connective tissue. Gently peel the muscle from the long bone and search carefully for a thin white threadlike tissue. This is a nerve. If this does not work, look for a bundle of connective tissue containing blood vessels. Gently pry it apart and search for the nerve.



NERVES

LIGAMENTS – Cut through the skin and muscle down to the joint between the long bone and the center bone. Locate the strong white bands of connective tissue that connect the two bones together at the joint. This is a ligament.



LIGAMENT

Conclusion:

How do the structures of the human and animal body (such as muscle tissue, fatty tissue, skin, etc) help keep the internal environment relatively stable?
